ELANTAS
Electrical Insulation

Technical Data Sheet
Electronic and Engineering Materials

ELAN-Cast® E 295 Black Resin
C 295 Hardener

Two Component Thermoset Epoxy

A member of ALTANA

ELANTAS
Electrical Insulation

Description
E 295 Black/C 295 is a two component epoxy resin system. E 295 Black is a liquid. C 295 is filled and natural in color.

Uses
- Potting and sealing of electrical and electronic equipment.

Cured Properties
E 295 Black /C 295 is a semi-rigid stator potting material for 155°C service.

Recommended Cure
- Optimum Cure - 4 hours @ 80°C(176°F) + 4 hours @ 120°C(248°F) + 4 hours @ 150°C(302°F) OR
- Non Critical applications:

8 hours @ 112°C (235°F) –OR-
6 hours @ 121°C (250°F)
After part reaches temperature

Note: Will gel 2 hours @ 107°C (225°F) or 1 hour @ 121°C (250°F) sufficient to remove from mold before final post cure.

Features and Benefits
- Suitable for 155°C systems
- Low Shrinkage
- Good thermal Shock resistance

Application Methods*(See below**)**
- Vacuum Potting
- Atmospheric Potting
- Casting

Transportation/Storage/Shelf Life
This resin and hardener should be at 25°C (77°F) in a dry controlled environment out of direct sunlight. These materials should be suitable for use stored under these conditions in the original sealed containers for twelve (12) months from the date of shipment. Failure to store this product as recommended above may lead to deterioration in product performance and invalidate shelf life. However, filler settling may occur, agitate before use. The resin and hardener may crystallize during storage see TI-4000 for information.

Properties of Material Supplied

Test	***Value***		***Units***
	E 295 Black	***C 295***	
Viscosity - 25°C (77°F) (ASTM D2196)	3,000 – 20,000	Paste	cP
Weight per gallon @ 25°C (77°F) (ASTM D1475), typical	10.5 – 10.9	10.4 – 10.8	Pounds
Flash Point (ASTM D93), typical	>94(201)	>94 (201°)	C°(°F)
Mix ratio parts by weight Mix ratio parts by volume	100 100	100 101	*See below

ELANTAS
Electrical Insulation

TYPICAL PROPERTIES

Properties of Material Supplied – mixed

Test	*Value*	*Units*
Sunshine Gel Time at 125°C (257°F) (ASTM D3056)	150 - 180	Minutes
Viscosity at 25°C (77°F) (ASTM D2196) typical	50000 – 70000	cP
Viscosity at 55°C (194°F) (ASTM D2196) typical	2000 - 5000	cP

Mechanical Properties – Specimens cured 4 hrs 80°C (176°F) + 4 hrs @ 120°C (248°F) + 4 hrs @ 150°C(302°F)

Test	*Value*	*Units*
Tensile Strength (ASTM D638)	407	Pounds/square inch
Elongation (ASTM D2519)	80	%
Hardness, Shore D (ASTM 2240)	65 - 70	
Glass Transition Temperature (Tg)	23 - 28	°C
Coefficient of Thermal Expansion Before/after Tg	45 / 135	ppm/°C
Thermal Conductivity	0.2 - 0.3	Watts/meter Kelvin

Electrical Properties

Test	*Value*	*Units*
Dielectric Strength – (57 mils) AS MADE (ASTM D149)	530	Volts/mil
Dielectric Strength – (57 mils) after 24 hours in water (ASTM D149)	490	Volts/mil
Dissipation Factor @ 25°C (77°F) 1 kHz (ASTM D150)	0.03	
Dielectric Constant @ 25°C (77°F) 1 kHz (ASTM D150)	4.1	
Volume Resistivity @ 25°C(77°F) (ASTM D257)	3.67×10^{10}	ohm-cm

* **Application Methods**

E 295 Black /C 295 is a filled system that will need to be mixed to insure each is homogenous before use. C 295 Hardener once a container is opened, it is advisable to blanket with nitrogen to minimize moisture contamination.

Note: Either product could crystallize with time and temperature fluctuations, heating and agitation to >50°C (120°F) will reconstitute the systems.

To mix properly,

1) Heat E 295 Black to 70-75°C (158-167°F) under agitation
2) Heat C 295 to 70-75°C (158-167°F) under agitation
3) Add C 295 to heated E 295 Black under agitation mix until homogenous.

Pour into unit to be potted while the mixture is 55 - 65°C (131 - 149°F); for optimum viscosity and air release 90°C (194°F). Vacuum can be applied to remove entrapped air.

Unit to be filled should be approximately 70-75°C (158-167°F). Vacuum can be applied to remove entrapped air.

The above properties are typical values and are not intended for specification use.

ELANTAS PDG, Inc. warrants the chemical composition of its products within stated tolerances, but does not guarantee that a product will be appropriate for any particular application. Any recommendation, performance of tests or suggestion is offered merely as a guide and is not a substitute for a thorough evaluation by the manufacturer. No representative of ELANTAS PDG, Inc. has the authority to offer a warranty that a product will perform satisfactorily in manufacturing a product and no such representation should be relied upon.